CLAIMS

1. A semiconductor light-emitting device comprising a multilayer structure, the multilayer structure including a plurality of compound semiconductor layers laminated and the multilayer structure generating light;

the multilayer structure having a light exit face for emitting the generated light, a glass substrate optically transparent to the light being fixed to the light exit face by way of a film made of silicon oxide.

2. A semiconductor light-emitting device according to claim 1, wherein the multilayer structure includes a first distributed Bragg reflector (DBR) layer of a first conductive type, a first cladding layer of the first conductive type, an active layer, a second cladding layer of a second conductive type, and a second DBR layer of the second conductive type sequentially laminated as the plurality of compound semiconductor layers;

wherein the multilayer structure has a multilayer region partially including the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer; and an insulated or semi-insulated current-narrowing region surrounding the multilayer region; and

wherein the first DBR layer is arranged between the first cladding layer and the film made of silicon oxide.

3. A semiconductor light-emitting device according to claim 2, wherein the multilayer structure further comprises a contact layer of the first conductive type positioned between the film made of silicon oxide and the first DBR layer.

4. A semiconductor light-emitting device according to claim 3, wherein the multilayer structure has:

a light-emitting part including the multilayer region; and

a pad electrode mounting part partially including the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer;

the semiconductor light-emitting device further comprising:

a first pad electrode arranged on the light-emitting part and electrically connected to the multilayer region; and

a second pad electrode arranged on the pad electrode mounting part and electrically connected to the contact layer.

5. A semiconductor light-emitting device according to claim 4, wherein the second pad electrode is electrically connected to the contact layer through an opening formed between the light-emitting part and the pad electrode mounting part.

6. A semiconductor light-emitting device according to claim 4, further comprising respective bump electrodes arranged on the first and second pad electrodes.

7. A semiconductor light-emitting device according to claim 4, wherein the multilayer structure has a plurality of the arranged light-emitting parts.

8. A semiconductor light-emitting device according to one of claims 2 to 7, further comprising a light-reflecting film disposed on the second DBR layer, the light-reflecting film covering the multilayer region.

9. A semiconductor light-emitting device according to one of

claims 1 to 8, wherein the glass substrate has front and rear faces;

wherein the front face of the glass substrate is in contact with the film made of silicon oxide; and

wherein the rear face of the glass substrate has a lens part for receiving the light emitted from the multilayer structure.

10. A semiconductor light-emitting device according to claim 9, wherein the lens part is depressed from the most raised portion in the rear face of the glass substrate.

11. A method of manufacturing a semiconductor light-emitting device having a multilayer structure, the multilayer structure including a plurality of compound semiconductor layers laminated and the multilayer structure generating light, the method comprising:

preparing a semiconductor substrate and a glass substrate, the semiconductor substrate having front and rear faces, the glass substrate having front and rear faces and being optically transparent to the generated light;

forming the multilayer structure on the front face of the semiconductor substrate;

forming a film made of silicon oxide on the multilayer structure;

fixing the multilayer structure onto the glass substrate by fusing the film made of silicon oxide onto the front face of the glass substrate; and

removing the semiconductor substrate while keeping the multilayer structure fixed to the glass substrate.

12. A method of manufacturing a semiconductor light-emitting device according to claim 11, wherein the removing the semiconductor

substrate includes removing the semiconductor substrate by wet etching.

13. A method of manufacturing a semiconductor light-emitting device according to claim 12, further comprising:

before the forming the multilayer structure, forming an etching stop layer for stopping the wet etching so that the etching stop layer is arranged between the semiconductor substrate and multilayer structure; and

after the removing the semiconductor substrate, removing the etching stop layer by wet etching.

14. A method of manufacturing a semiconductor light-emitting device according to one of claims 11 to 13, wherein the multilayer structure includes a first distributed Bragg reflector (DBR) layer of a first conductive type, a first cladding layer of the first conductive type, an active layer, a second cladding layer of a second conductive type, and a second DBR layer of the second conductive type as the plurality of compound semiconductor layers;

wherein the forming the multilayer structure includes sequentially laminating the second DBR layer, second cladding layer, active layer, first cladding layer, and first DBR layer on the front face of the semiconductor substrate.

15. A method of manufacturing a semiconductor light-emitting device according to claim 14, wherein the forming the multilayer structure further includes forming a contact layer of the first conductive type positioned on the topmost portion of the multilayer structure after laminating the first DBR layer.

16. A method of manufacturing a semiconductor light-emitting

device according to claim 15, further comprising:

after the removing the semiconductor substrate, forming an insulated or semi-insulated current-narrowing region in the multilayer structure, the current-narrowing region surrounding a multilayer region partially including the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer;

forming a light-emitting part and a pad electrode mounting part, the light-emitting part including the multilayer region, the pad electrode mounting part partially including the first DBR layer, first cladding layer, active layer, second cladding layer, and second DBR layer; and

forming a first pad electrode on the light-emitting part to electrically connect the first pad electrode to the multilayer region, and forming a second pad electrode on the pad electrode mounting part to electrically connect the second pad electrode to the contact layer.

17. A method of manufacturing a semiconductor light-emitting device according to claim 16, wherein the forming the light-emitting part and the pad electrode mounting part includes forming an opening between the light-emitting part and the pad electrode mounting part; and

wherein the electrically connecting the second pad electrode to the contact layer includes electrically connecting the second pad electrode to the contact layer through the opening.

18. A method of manufacturing a semiconductor light-emitting device according to claim 16 or 17, further comprising forming a light-reflecting film covering the multilayer region on the second DBR layer.

19. A method of manufacturing a semiconductor light-emitting

device according to claim 11, wherein the rear face of the glass substrate has a lens part for receiving the light emitted from the multilayer structure.

20. A method of manufacturing a semiconductor light-emitting device according to claim 19, wherein the lens part is depressed from the most raised portion in the rear face of the glass substrate.